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09/880,805	06/15/2001	Donald Shiou Tarnng Wang	WANG3016/EM/6873	6704

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EXAMINER

POE, MICHAEL I

ART UNIT

PAPER NUMBER

1732

DATE MAILED: 10/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/880,805

Applicant(s)

WANG ET AL.

Examiner

Michael I Poe

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Amendments

1. Applicant's amendments A and B filed on October 8, 2002 and November 4, 2002, respectively, have been entered. Based upon the entry of this amendment, no existing claims have been amended, existing claims 1-13 and 25 have been canceled, and no new claims have been added. Claims 14-24 are currently pending.

Election/Restrictions

2. Applicant's election without traverse of Group I, claims 14-24, in Paper Nos. 3 and 5 is acknowledged.

3. Claims 1-13 and 25 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in Paper Nos. 3 and 5. It is noted that nonelected claims 1-13 and 25 have been canceled by applicant's amendments A and B.

Priority

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 14-16 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,154,964 (Iwai et al.) in view of U.S. Patent No. 5,324,307 (Jarrett et al.).

Claims 14-16 and 20-23

Iwai et al. teach a process for forming a non-metallic coreless twist tie (an unmemory cold deformable plastic object) including melting polymeric material having a degree of crystallization of about 10% to 60% at a crystallized temperature range of about 100°C to 250°C (semi-crystalline or crystalline), extruding the material into an elongated form (thermoplastic intermediate), cooling the material and then drawing the material at a rate of more than about 2.5 times (1.5 to 50 times of its original length; 5 to 30 times of its original length) at a temperature of about 80°C to 150°C (a temperature lower than its melting point; room temperature or an elevated temperature) (abstract; column 2, line 49 – column 3, line 13; column 4, line 59 – column 5, line 23). Note that one of ordinary skill in the art would have obviously recognized that the indicated drawing temperatures in the process of Iwai et al. were below the melting temperatures of the materials being used in the process of Iwai et al. Iwai et al. further teaches that the polymeric material preferably includes one (a homopolymer of an ethylenically unsaturated monomer) or more (a copolymer or terpolymer of two or more ethylenically unsaturated monomers) of the following: super high molecular polyethylene resin, polypropylene resin, polyamide resin, polybutylene terephthalate resin, polyethylene terephthalate resin and the like.

Although Iwai et al. teach the basic claimed process, Iwai et al. do not specifically teach that the material is drawn to an extent so that it loses its elasticity substantially. However, Jarrett et al. teach a process for forming a "twist tie" as is commonly used for holding objects (an unmemory cold deformable plastic object) including extruding a semi-crystalline polymer through a single jet to orient the semi-crystalline polymer to form a polymeric wire (thermoplastic intermediate), quenching the polymeric wire at about 25°C, and drawing the polymeric wire in at least one stage at a draw ratio greater than one times to less than about 12 times (1.5 to 50 times of its original length; 5 to 30 times of its original length) wherein the resulting "twist tie" has enhanced ductility in flexure (i.e., the property of permanent deformability, or plasticity, which may result from processes such as crazing or yielding) (to an extent so that said intermediate loses its elasticity substantially) (column 1, lines 9-30; column 5, line 62 – column 6, line 15;

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column 8, lines 31-39). Note one of ordinary skill in the art would have recognized from the teachings of Jarrett et al. as a whole that the resulting product must be substantially non-elastic to have ductility as defined by Jarrett et al. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to provide ductility to the twist tie via the drawing process in the process of Iwai et al. as taught by Jarrett et al. to thereby provide a twist tie capable of holding a permanent bend or twist but further capable of being untwisted upon the application of work.

7. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,154,964 (Iwai et al.) in view of U.S. Patent No. 5,324,307 (Jarrett et al.) and U.S. Patent No. 5,407,623 (Zachariades et al.).

Claims 17-19

The discussion of Iwai et al. and Jarrett et al. as applied to claim 14 above applies herein.

Although Iwai et al. in view of Jarrett et al. teach the basic claimed process as discussed above, Iwai et al. in view of Jarrett et al. do not specifically teach that the drawing speed ranges from 10 mm/min to 500 mm/min, 50 mm/min to 1000 mm/min or 100 mm/min to 500 mm/min. However, Zachariades et al. teach a method of producing high modulus and high strength products of polyethylene and other thermoplastic polymers such as fishing line having a low stretch factor (an unmemory cold deformable plastic object) including forming a precursor material into a tape, ribbon, sheet, rod, monofilament, tube or any other geometrical profile by skiving or by ram or melt extrusion (thermoplastic intermediate) and drawing the formed precursor material into an oriented product of a desired size and cross section at a temperature between 80°C to 130°C (at a temperature lower than its melting point) and a draw rates from 0.5 to over 100 feet/min (i.e., 152 mm/min to 30,480 mm/min) (using single or multiple stages (abstract; column 5, lines 36-43; column 6, lines 47-64; column 9, lines 21-29). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use the drawing speeds taught in Zachariades et al. in the process of Iwai et al. in view of Jarrett et al. to thereby provide a twist tie having enhanced strength and high modulus characteristics as taught by Zachariades et al. in column 6, lines 47-64. Note further that drawing speed

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is well known in the art as result effective variable; therefore, one of ordinary skill in the art would have obviously determined the optimum drawing speed in the process of Iwai et al. through routine experimentation based on the material being used, the desired characteristics of the twist tie, the other process variables, etc.

8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,154,964 (Iwai et al.) in view of U.S. Patent No. 5,324,307 (Jarrett et al.) and U.S. Patent No. 5,444,113 (Sinclair et al.).

Claim 24

The discussion of Iwai et al. and Jarrett et al. as applied to claim 14 above applies herein.

Although Iwai et al. in view of Jarrett et al. teach the basic claimed process as discussed above, Iwai et al. in view of Jarrett et al. do not specifically teach that the twist tie can be formed of a biodegradable thermoplastic material. However, Sinclair et al. teach that products such as twist tie fasteners can be formed by extrusion molding hydrolytically degradable polymers (abstract; column 38, lines 12-36). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use a hydrolytically degradable polymer to form a twist tie by the process of Iwai et al. in view of Jarrett et al. as taught by Sinclair et al. to thereby provide twist ties which are suitable for recycling after use or which are discarded into the environment in large volumes without detrimentally harming the environment (see specifically the abstract of Sinclair et al.).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 4,797,313 (Stolk et al.) has been cited of interest to show the general state of the art at the time the invention was made.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael I Poe whose telephone number is (703) 306-9170. The examiner can normally be reached on Monday through Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni, can be reached on (703) 305-5493. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1234.



Michael Poe/mip



MICHAEL COLAIANNI
PRIMARY EXAMINER